A MEMORANDUM ON THE OCCUPATIONAL STUDY OF SYPHILIS, WITH SPECIAL REFERENCE TO FARMERS.

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IN January, 1919, the authors published[1] an account of a clinical investigation of syphilis in 100 railroad men examined in the Section of Dermatology and Syphilology of the Mayo Clinic. At this time it was planned to extend the work to similar clinical studies of syphilis made on the personnel of other occupations with a view to determine whether occupation as such could serve as a factor of predisposing or modifying influence in the course of the disease. With a view to securing a type of person whose mode of life was as different as possible from that of the railroad man, farmers were selected for the present group. A survey of 100 patients whose present and past occupation had been that of farmer or farm laborer has disclosed a very striking similarity between the two groups. In the table the two groups of fifty railroad men each who comprise the first survey are compared with 100 farmers. The slightly lower incidence of frank neurosyphilis in the farmers and other minor variations among the various details of the statistical compilation are the only differences apparent. None of these differences is sufficiently marked to justify the conclusion that syphilis among farmers as seen at the Mayo Clinic differs in any essential particular from syphilis as seen in railroad men.

Two questions at once arise in the interpretation of such a result: (1) Were we in examining 100 farmers with syphilis really examining an occupational type of the disease? (2) Did we not merely examine a medically selected type of the disease in persons who because of the character of their symptoms and the relation of the medical profession to the general problem of syphilis inevitably gravitated to a diagnostic group for the final interpretation of symptoms whose anomalous character prevented a diagnosis by the general practitioner? On careful consideration of these questions we have reached the conclusion that we were in all probability dealing with the general problem of the diagnosis of syphilis, and especially of late syphilis, and not with the peculiarities of syphilis in any special occupational type. In order to reach a correct interpretation of the possible modifications in the course of syphilis induced by occupational factors the investigation must evidently be carried to the group and not be based on a study of that portion of the group which for one or another reason may be attracted to a center for medical examination.

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[1] Stokes, J. H., and Brehmer, Helen E.: Syphilis in railroad men. Jour. Indust. Hygiene, 1920, i, 419-427.

The reaching of this conclusion does not for a moment invalidate the significance of our findings in those members of a given group whom we have examined. It is fully as important as ever for us to realize that railroad men with active neurosyphilis and with grave cardiac lesions are engaged in the operation of trains and in other work involving responsibility for the safety of the travelling public and the property of their employers. The farmer at his plow may fall a victim to cerebral hemorrhage with perhaps less serious consequences to the immediate physical safety of the public.

In the parallel columns presented in the table we have, therefore, a cross-section of syphilis as it is observed in a general diagnostic clinic such as that from which this material is taken. A number of the conclusions drawn from our previous papers may be drawn with equal reason from our study of farmers. The limited value of the history of infection and the blood Wassermann test in the diagnosis of the medical manifestations of the disease is again apparent. The masked onset of syphilis and gonorrhea falls to an average of 18 per cent. The slightly lower percentage of positive spinal fluids and of neurosyphilis in the farmers is possibly due to the fact that taking the cases at random led to the inclusion of several more cases of primary and secondary syphilis among the farmers than among the railroad men. The conspicuous absence of a history of secondary manifestations in both groups seems to confirm the aphorism that the patient with severe secondary manifestations is fortunate rather than otherwise, since he is the only one who receives enough treatment to protect him against late complications. The very striking correspondence of pupillary and neurological findings in the two groups again points to the fact that the profession at large is not as yet utilizing to their full value the clinical earmarks of the disease produced by its encroachment on the nervous system.

CONCLUSIONS.

1. A survey of syphilis in 100 farmers whose records were taken at random from the files of the section of dermatology and syphilology in the Clinic reveals no distinctive difference between the clinical picture of the disease in farmers and that in railroad men.
2. This result is not to be interpreted as precluding the possibility of special occupational types in the disease. For the determination of such types the investigation must be taken to the groups instead of subjecting the group to a species of unconscious medical selection involved in resort to a diagnostic clinic.
3. The figures given in the table therefore present essentially the diagnostic problem of late syphilis in general medicine. They sug-

gest further that physicians at large could profitably give less attention to the history of infection and the serum Wassermann test and more attention to the spinal fluid test and to the physical and especially the neurological and ophthalmic findings in their effort to recognize late syphilis and to interpret the medical picture presented by a given patient.

COMPARISON OF DUPLICATE SURVEYS OF TWO GROUPS OF FIFTY RAILROAD MEN EACH, AND ONE GROUP OF ONE HUNDRED FARMERS.

	Railroad men.		
	First series. Per cent	Second series. Per cent	Farmers. Per cent
Cerebrospinal fluid positive	64.0	79.0	51.7
Lues, central nervous system	79.5	83.0	68.5
Lues III, cardiovascular	18.7	20.0	12.0
Blood Wassermann negative	57.0	58.0	43.0
Blood Wassermann positive	43.0	42.0	50.0
Wassermann weak positive	4.0	2.0	7.0
Use of alcohol	75.0	61.0	55.0
Heavy drinkers	36.0	33.0	32.0
History of lues II unobtainable	62.5	60.0	60.0
Lues recognized at some time	55.0	57.0	
Age of onset late symptoms—over thirty	78.0	75.0	70.7
Gonorrheal history positive	80.0	73.0	52.0
Gonorrhea only	24.0	19.0	12.0
Symptoms appearing from six to twenty after infection	71.0	67.0	46.0
Percentage infected by the age of thirty-two years	91.0	81.0	77.0
Wassermann on men under twenty-five years will reach	70.0	60.0	61.0
Sterile or pathologic marriages	44.0	50.0	32.0 (of 59)
Age on entry—patients between thirty-five and forty years	32.0	36.0	19.0
Concerned in operation of trains	76.0	70.0	
Concerned in operation of engines	36.0	36.0	
SYMPTOMATOLOGY.			
Gastric	28.0	22.0	25.0
Not suggestive of lues	18.0	24.0	8.0
Headaches and head pains	16.0	16.0	13.0
Cardiac	14.0	16.0	4.0
Diplopia and poor vision	14.0	10.0	16.0
Malaise, weakness	12.0	8.0	10.0
Shooting pains	10.0	20.0	19.0
Bladder (subjective)	10.0	4.0	13.0
Nervousness	8.0	4.0	
"Do I have syphilis?"	8.0	6.0	4.0
Laryngeal	8.0	6.0	4.0
Rheumatism	4.0	18.0	7.0
Ataxia (subjective)	4.0	6.0	13.0
Girdle pain	4.0	4.0	16.0 (paresthesia)
Dizziness	2.0	8.0	13.0
Loss of consciousness	....	7.1	10.4

OBJECTIVE EXAMINATION.

Abnormal knee reflexes	65.1	79.0	73.7
Abnormal Achilles reflex	78.1	62.0	61.9
Romberg positive	38.0	42.0	50.7
Speech defect	15.7	17.0	11.0
Mental symptoms	38.4	38.0	41.6
Paresthesias	55.8	51.3	41.0
Ataxia (objective)	36.8	36.3	41.0
Bladder (objective)	47.5	20.5	31.0

EYE FINDINGS.

"Slow" reflexes	25.0	per cent. of	48	cases	21.7 of 78 cases.
Argyll-Robertson pupils	37.0	" "	48	"	32.0 of 78 "
Unequal pupils	14.5	" "	48	"	23.8 of 67 "
Irregular pupils	14.5	" "	48	"	26.8 of 67 "
Muscular paralyses	12.5	" "	48	"	10.5 of 67 "
Fundus changes	26.5	" "	34	"	4.4 of 67 "

THE HEART IRREGULARITY CALLED "SINO-AURICULAR BLOCK."

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Introduction. While examining recruits to determine their cardiovascular fitness for military service, my attention was attracted by a form of heart irregularity which frequently appeared following exercise in healthy youths of the athletic type. The exercise test which was prescribed for cardiovascular examinations consisted in hopping

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EXHIBIT A. A Normal Electrocardiogram. (Presented for comparison with the illustrations which follow.) The *P* wave, which is the representative of auricular activity, is followed by the ventricular complex *Q–R–S–T*. The *R* wave represents initial activity at the base of the ventricles; the *T* wave is believed to represent final activity at the base of the ventricles. From the ending of the *T* wave to the beginning of the *P* wave is the rest period of the heart. Normally, each *T–P* or diastolic period is equal in length or nearly so. In the condition called "sino-auricular block" the *T–P* interval suddenly becomes of a length much greater than the usual rest-period between heart-beats.